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ABSTRACT

This guide to the burgeoning literature and resources on workplace literacy begins with an overview describing issues and trends in the development of the literature base. Hints for locating and selecting workplace literacy resources in Educational Resources Information Center--ERIC and other databases are provided. An annotated bibliography of 87 resources is organized by the following framework: general information (definition/description, information analysis/synthesis, critical perspectives), research (reviews, literacy requirements of the workplace, program development/implementation), evaluation and assessment, curriculum and instructional materials, program development guidelines, program descriptions, policy information, and resource lists/bibliographies. Seven programs are described, selected because they used innovative approaches or encountered problems that provide useful information. Each description includes the following elements: title, partners, special features, target population, source of information, program description, successes and problems, and recommendations. A list of 14 resource organizations is followed by 40 references. Two appendices contain the following: ERIC citations for 79 projects funded by the National Workplace Literacy Program, arranged by state, and an ERIC Digest, "Locating and Selecting Information: A Guide for Adult Educators." (SK)

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Clearinghouse on Adult, Career,
& Vocational Education

Workplace Literacy: A Guide to the Literature and Resources

by
Susan Imel
Sandra Kerka

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
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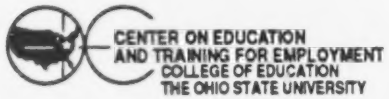

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FOREWORD

The Educational Resources Information Center Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) is 1 of 16 clearinghouses in a national information system that is funded by the Office of Educational Research and Improvement (OERI), U.S. Department of Education. This publication was developed to fulfill one of the functions of the clearinghouse–interpreting the literature in the ERIC database.

Susan Imel, Director and Adult Education Specialist of ERIC/ACVE, has been with the clearinghouse since 1980, previously serving as Assistant and Associate Director. She was recently co-principal investigator of a National Workplace Literacy Project conducted in partnership with General Motors' Inland Fisher Guide division and United Auto Workers Local 969. She is the author of "Choosing Workplace Literacy Resources," a chapter in *Basic Skills for the Workplace* and "Information Resources for Professional Development" in *New Directions for Adult and Continuing Education* no. 51 (1991).

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Ray D. Ryan
Executive Director
Center on Education and Training
for Employment

INTRODUCTION

During the past 5 years, the literature and resources related to workplace literacy have experienced explosive growth. No other area of the educational literature covered by the ERIC Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) has expanded so rapidly. The growth in adult literacy education during the 1980s, coupled with the underlying concern that the United States was losing ground as an economic power, stimulated the development of the literature base in workplace literacy. As a result of the awareness of the need for workplace literacy, public and private resources were devoted to funding workplace literacy programs and projects.

The rapid development of the literature base has been accompanied by an increased demand for information on workplace literacy from the field. In response to the demand, ERIC/ACVE staff have produced and disseminated a number of user products on workplace literacy (for example, Imel 1988, 1992; Kerka 1990). In addition, staff have responded to many individual questions from practitioners throughout the country. Although it has not always been possible to answer questions related to workplace literacy, these conversations have helped ERIC/ACVE staff understand the kinds of information needs that exist in the field.

This publication has been developed in response to those needs. Its purpose is to serve as a guide to the information and resources in workplace literacy. In addition to providing information about specific resources, it also contains tips that will enable practitioners to become better consumers of workplace literacy resources. Because it is a resource to answer questions related to workplace literacy, it is not designed to be read "cover to cover." Rather, it is assumed that users of the resource will refer to the most relevant sections as prescribed by their needs.

The guide begins with an overview describing workplace literacy issues and trends in the development of the literature base. Hints for locating and selecting workplace literacy resources are discussed in the next section, which introduces a framework for organizing the literature. The third section is an annotated bibliography of recent resources, organized around the framework. The bibliography is followed by descriptions of some of the many workplace literacy programs found in the literature; those included were selected because they either used innovative approaches or encountered problems that provide useful information to program developers. A list of organizations that can serve as resources on workplace literacy-related questions concludes the guide. Because ERIC/ACVE frequently receives requests for information about reports from projects funded by the National Workplace Literacy Program, an appendix provides ERIC document (ED) numbers for those that have been included in the database.

THE LITERATURE BASE: RELATED ISSUES AND EMERGING TRENDS

During the 1980s, workplace literacy dominated the "[language] of literacy reform efforts" (Edlund 1992, p. 10). Workplace literacy was catapulted to national prominence by the perception that, as a nation, the United States was losing its competitive edge. Viewed by many as a solution to the nation's economic woes, workplace literacy became a growth industry within the education and training community. Workplace literacy programs were developed with the goal of raising workers' basic skills so that they could perform more effectively in increasingly complex work environments.

The emergence of workplace literacy as a priority has been accompanied by an explosion in information about workplace literacy. In addition, a number of issues related to workplace literacy have evolved. This chapter begins by reviewing some of the issues surrounding workplace literacy. This brief review provides background information for the next section: a discussion of trends in the development of the literature base.

What Are the Issues?

Many diverse strategies and programs have been implemented to address the need for a better educated work force. As these programs have multiplied so has the number of issues associated with workplace literacy. Some of these issues are related to assumptions underlying the need for workplace literacy whereas others have to do with program development, implementation, and evaluation.

Many issues associated with the assumptions on which the need for workplace literacy programs are based focus on the "language" or vocabulary that is used to describe this need. In citing the need for workplace literacy programs, publications–especially the news media–frequently use questionable arguments or information to depict workers as being deficient or lacking in basic skills. Examples of this practice include the following:

> The problem of adult illiteracy is not as bad as we thought–it's worse. Americans were outraged when Japanese politicians mocked U.S. workers, saying 30% were illiterate. But in fact, in some areas 70% of blue-collar workers lack basic reading, writing and math skills. It's that serious. (Easton 1992)

> More than 10 million workers in small businesses have trouble doing their jobs because their reading, writing and math skills are so poor, a private research group said yesterday. ("Johnny, 10 Million Others, Still Can't Read in the Workplace" 1992, p. E1)

Although it has been suggested that the use of this language has alerted businesses and the general public to the need for some action, such descriptions dehumanize workers. They also fail to take into

account the considerable skills and knowledge most workers bring to the workplace. According to Hull (1991), "the popular discourse of workplace literacy tends to underestimate and devalue human potential" (p. 9).

In addition, many articles tend to place the responsibility for the current economic woes solely on the worker, failing to acknowledge that literacy is only one component of a more productive work force ("Myth #15" 1991). It is not unusual to see discussions of the "costs of illiteracy" to business and society linked to insufficient basic skills. Although there are undeniable economic consequences to an improperly trained work force, the "blame the worker" approach frequently suggests that workers with low literacy are viewed as a major source of economic ills (Edlund 1992; Hull 1991). Such a perspective does not recognize the structural inequalities that are built into the social and economic systems (Kazemek 1988). It also does not take into account changes that have occurred in the workplace, including technological advances and new methods of organizing work, which require different and more complex skills than those on which schools have traditionally focused (Delker 1990).

In contrast, some scholars (cited in Weisman 1991, 1992) are now suggesting that government policies and corporate practices–not skills shortages among workers–are primarily responsible for the diminishing competitiveness of the U.S. work force. "This revisionist view holds that business management has stubbornly refused to transform the workplace and has chosen instead to avoid its responsibilities by blaming the schools" (Weisman 1991, p. 14). Advocates of this line of thinking believe that as U.S. jobs are either exported or replaced by new equipment and procedures, eventually low-paying service-sector jobs will predominate at the expense of higher-paying manufacturing and technical positions. These advocates support their position by citing the low numbers of companies who have adopted management philosophies promoting high performance workplaces (ibid.).

For example, according to *America's Choice: High Skills or Low Wages!* (Commission on the Skills of the American Workforce 1990), only 5 percent of employers feel that education and skill requirements in the workplace are increasing significantly. This perception emerges from the choice most companies make to pursue what the report terms "a low wage model," which results in a slow rate of economic growth and a continuing decrease in worker income.

A second set of issues is connected to program development and implementation. Nearly every component of workplace literacy programs has affiliated issues as illustrated by the following questions:

- **Negotiation of Goals**. What should be taught? Should the curriculum be related strictly to high priority job tasks as determined by management, or should it be more broadly based? Should the program aim not only at changing the behavior of individual employees but that of the work organization as well? Who should decide program objectives, and what is the best way of involving them in program decision making–not only at the beginning but throughout the life of the program? To what extent should workers be involved in determining the curriculum?

- **Curriculum Design and Delivery**. What are the most effective instructional approaches to achieving the partnership's goals? To what extent

should instruction focus on the basic skills required by a particular, immediate workplace context? How appropriate are traditional teacher-student relationships in a workplace program, or are other ways of organizing learning groups–such as peer teaching and collaborative learning–more appropriate? Should the instruction be offered during work time or should the employees participate on their own time? What roles, if any, should electronic instructional technologies play in workplace literacy programs?

- **Assessment.** What are effective ways of assessing learner and organizational progress toward program goals? What, if any, relevance do standardized tests have to the particular goals of workplace education? What can be done to ensure that assessment information is not misused?

- **Evaluation.** How can assessments of a program's outcomes be used to guide decisions about improving and continuing the program? How can the impact of learning be measured both in terms of the job and the impact on the organization? What roles should the many partners in workplace programs play in evaluation? How can program evaluations be used to shape practice and policy in the field as a whole?

- **Professional Development.** What qualities are required to be an effective workplace educator? How can practitioners be selected, trained, and supported to provide high-quality service? Do traditional adult education providers have adequate preparation and background knowledge to teach workers?

- **Funding.** What are the financial and in-kind resources required to develop and implement a high-quality employee basic skills program? Who is responsible for providing these resources? How should limited resources be allocated?

In many respects, a company's response to questions related to workplace literacy program development and implementation issues is driven by its prevailing goals and philosophy, including how it views its work force. For example, low wage companies that tend to be bureaucratic and hierarchical are likely to have prescriptive, top-down, quick-fix workplace literacy programs that are narrowly focused, job specific, and mandatory with a curriculum based strictly on literacy task analysis. On the other hand, in newer, high-skill, high-performance companies that place more responsibility in the hands of the average employee, workplace literacy programs are inclined to encourage learners to shape program content and take more active roles in the instructional process. They are also voluntary and begin with a broader analysis of how the organization should be improved, including the role education plays in those improvements (Sarmiento 1991).

There are many debates about the assumptions underlying workplace literacy programs and the most appropriate approaches to program development. There has also been increasing interest in developing workplace literacy programs, especially among companies that have chosen the "high skills model" (Commission on the Skills of the American Workforce 1990). Unfortunately, limited research currently exists to guide practice; however, a practice-based literature that can respond to many of the questions and issues related to program development is slowly emerging. Trends in the emerging workplace literacy literature base are described next.

What Are the Trends in the Developing Literature Base?

When workplace literacy emerged as a priority in the 1980s, resources were scarce that could provide answers to questions about program development as well as other aspects of the topic. During the past 5 years that situation has changed, and now the literature base related to workplace literacy is burgeoning. Since 1990, for example, almost 300 items indexed with the term "workplace literacy" have been added to the ERIC database. Whereas practitioners were once faced with a shortage of materials, they are now confronted with having to make sense of a plethora of resources. A number of trends related to the development of the literature are emerging. An understanding of these trends can help practitioners make more effective use of the available resources.

Although resources related to workplace literacy have recently begun appearing at a rapid rate, the literature base is still primarily descriptive in nature. Also, the literature base is both fragmented and difficult to locate. Print-based materials (such as research reports, project descriptions, theoretical developments) emerge from many different disciplines, including adult basic and literacy education, training and development, cognitive psychology, industrial psychology, and anthropology. Information about workplace literacy is sometimes buried in reports about workplace issues (for example, Office of Technology Assessment 1990; Seitchik, Zornitsky, and Edmonds 1990). Remaining current with the resources means scanning multiple information sources. In addition, much of the practice-based information about workplace literacy can be acquired only through personal contact by tapping into existing networks.

Despite the weaknesses associated with current resources, the following trends indicate that a more robust literature base is emerging. (Resources cited as examples in this section are described in section 3, Annotated Bibliography of Workplace Literacy Resources.)

- **Literature related to program development is expanding.** More information about specific aspects of program design and implementation is available. Of particular note has been the emergence of information about program evaluation and task analysis (Manley et al. 1991; Mikulecky and Lloyd 1992; Sperazi, Jurmo, and Rosen 1991; Sticht 1991; Taylor and Lewe 1990). Publications have also been developed that provide specific guidance in developing programs for particular groups such as employees with limited English proficiency (Thomas et al. 1991), employees in specific industries (Mikulecky and Philippi 1990), and union members (Sarmiento and Kay 1990; *Workplace Education from A to Z* 1992).

- **Due to increased federal and state support for workplace literacy projects, more project descriptions are available.** The primary funding source for workplace literacy demonstration projects has been the Adult Education Act (now known as the National Literacy Act) that established the National Workplace Literacy Program in 1988. Administered by the Division of Adult Education and Literacy, Office of Vocational and Adult Education, U.S. Department of Education, the program is currently in its fourth funding cycle. *Workplace Literacy: Reshaping the American Workforce* (U.S. Department of Education 1992b) and *Workplace Education: Voices from the Field* (U.S. Department of Education 1992a) both provide information about the projects funded under this program. In addi-

tion, many of the final reports of National Workplace Literacy Program-funded projects are available through the ERIC database as shown in the matrix in appendix A.

Other funding sources have resulted in additional project descriptions. For example, using funds from both the U.S. Department of Commerce and the U.S. Department of Labor, the American Association of Community Colleges (AACC) funded 10 national workplace literacy demonstration projects to raise awareness of the link between local economic development and basic workplace skill performance. Several of these project descriptions are available through the ERIC database (Barnett 1991; Carnes 1991; Roane State Community College 1991). A combination of state and federal funds have been used in Massachusetts to support a variety of workplace literacy projects. Information on several of these projects, many of which are participatory in nature, is available in Sperazi, Jurmo, and Rosen (1991).

- **Workplace literacy is being examined from a number of critical perspectives.** Several writers (Darrah 1992; Hull 1991; Sarmiento 1991) have explored the traditional assumptions on which workplace literacy programs are based. The critical perspective literature has heightened sensitivity about how workers are depicted in the literature and media as well as the role of illiteracy in the nation's economic decline. The concept of participatory, collaborative approaches to workplace literacy is also gaining momentum through this literature (Sarmiento and Kay 1990; Soifer et al. 1990; Sperazi, Jurmo, and Rosen 1991).

- **Workplace literacy as a facet of a learning organization or high performance workplace is beginning to emerge in the literature.** The movement toward participatory workplace literacy programs is closely associated with new organizational structures as exemplified by high performance organizations. Stein (1991) and Sarmiento (1991) describe how workplace literacy programs in a high-performance workplace differ from those in more traditional organizations.

- **Increasing diversity exists in the amount and types of materials related to the instructional aspects of workplace literacy programs.** Available instructional materials range from complete curricula to suggested approaches for developing individualized lesson plans. However, the quality dimensions of these items vary greatly. Workplace-specific curricula are still scarce, due undoubtedly to the need to customize workplace materials for a specific context and the labor-intensive nature of documenting curricula. Some programs have used approaches to instruction that emphasize development of metacognitive strategies and processes rather than "mastery" of prescribed, written materials and therefore have not produced curricula in the traditional sense (Dowling et al. 1992). In a few cases, these metacognitive approaches to learning have been made commercially available (for example, Mikulecky and Philippi 1990; *Paradigm Basic Skills Program* 1991). Some student-developed materials are being used in workplace literacy instruction, but they are not being disseminated through channels such as ERIC.

- **The workplace literacy research base is expanding slowly.** Much early work-

place literacy-related research focused on investigating the differences between workplace literacy and forms of literacy taught in schools as well as the literacy requirements of the workplace. Several recent research studies have resulted from projects related to aspects of program development and implementation such as evaluation (Barker 1991; Mikulecky and Lloyd 1992), task analysis (Taylor and Lewe 1990), and needs assessment (Lewe 1992). Recently, dissertations have emerged as a source of research on workplace literacy and show promise of providing new directions in research (for example, Gowen 1992; Mulcrone 1990).

- **Literature advocating a narrow interpretation of job context is still commonplace, but that situation, too, is changing.** Beginning around 1986, many workplace literacy publications began calling for a functional context approach with a focus on analyzing the gaps between a workplace's literacy requirements and the abilities of its work force. In this approach, a curriculum was developed to fill in the gaps, usually through a top-down process with decisions made primarily by higher-level educational experts (Jurmo 1992). As mentioned previously, some writers are calling for a different interpretation of contextualized learning, one that is more participatory in nature and that supports the move toward high performance organizations. This new perspective is emerging in the literature (Sperazi, Jurmo, and Rosen 1991; Stein 1991), and those advocating this alternative interpretation argue that such an approach ensures greater relevance for and buy-in by all stakeholders, while reinforcing the critical thinking and teamwork required to transform workplaces into high-performance, continuous improvement organizations. Whereas earlier curriculum development was viewed as the most critical process in workplace literacy, this approach gives equal or greater weight to the development of the relationship among all partners involved (Jurmo 1992).

Trends in the literature reflect healthy developments in workplace literacy. New perspectives are represented and there is increasing diversity in the resources. In addition, the research base is expanding. The rapid growth in the literature makes access difficult for those unfamiliar with the resources. Following an explanation of how to find and select resources, the next section contains an annotated bibliography of selected workplace literacy resources categorized by a framework that was developed to organize the expanding literature base.

FINDING AND SELECTING RESOURCES

As practitioners make decisions about expanding existing or initiating new workplace literacy programs, they need information to answer questions related to developing, implementing, and refining approaches to workplace literacy. Some frequently asked questions include the following: What literacy skills are needed for the workplace? What kinds of programs currently exist? How can effective programs be developed? What are appropriate methods of assessment? How can programs be evaluated? and Are there existing instructional materials that can be used?

The fugitive and fragmented nature of the literature and resources may be intimidating to those entering the field. In addition, the rapid growth of available information means that practitioners are faced with having to sort through a burgeoning resource base. To help individuals access and use effectively the expanding resource base related to workplace literacy, this chapter describes how to locate materials and presents a framework for selecting and organizing materials.

Locating Materials

Workplace literacy resources appear in a variety of formats, but the most common are reports resulting from funded projects, research studies, conference papers, policy studies, and journal articles. Only recently have workplace literacy resources begun appearing in commercially produced publications. Because of their fugitive nature, the best place to locate workplace literacy resources is through database searching. Several databases contain information about workplace literacy but the Educational Resources Information Center (ERIC) database is the primary source.

Finding Workplace Literacy Information in the ERIC Database

ERIC, the largest education database in the world, contains more than 735,000 records of documents and journal articles. All types of materials–research reports, project descriptions, curriculum materials, conference papers and proceedings, and others–are indexed and abstracted for announcement in *Resources in Education* (RIE); journal articles are abstracted in *Current Index to Journals in Education* (CIJE). The ERIC database can be searched manually through the print versions of RIE and CIJE, online via computer and modem, or on CD-ROM (Compact disk–read-only memory). (Appendix B provides more information about database searching.) In addition, almost all documents announced in RIE are available in microfiche collections in more than 800 locations worldwide or in microfiche and/or paper copies from the ERIC Document Reproduction Service (EDRS), 7420 Fullerton Road, Suite 110, Springfield, VA 22153-2852 (800/443-ERIC; 703/440-1400).

Copies of journal articles announced in CIJE are not available from ERIC, but many of them may be obtained from the UMI Article Clearinghouse, 300 North Zeeb Road, Ann Arbor, MI 48106

(800/732-0616; 313/761-4700 in Michigan, Alaska, and Hawaii; 800/343-5299 in Canada). Articles available from UMI are so marked in the CIJE abstracts. Journals not available from UMI may be found in library collections.

The ERIC database is indexed by subject terms called descriptors and identifiers. Most documents and articles on the topic of workplace literacy can be found using the identifier, "Workplace Literacy." Other descriptors that can be used to retrieve related information include "Basic Skills," "Adult Basic Education," "Literacy Education," and "Adult Literacy." Materials can also be found through searching by corporate source (roughly equivalent to the publisher of a document). The projects funded by the Office of Vocational and Adult Education's National Workplace Literacy Program (NWLP) are identified by the following corporate source: Office of Vocational and Adult Education (ED), Washington, DC. National Workplace Literacy Program. DIALOG is one of the primary database vendors through which ERIC can be searched by computer. In searching DIALOG online, NWLP documents can be retrieved with the corporate source code CS=EDD00086. Both DIALOG and Silver Platter provide CD-ROM versions of ERIC. NWLP documents can be retrieved on CD-ROM by using the term "National Workplace" (Silver Platter) or "National (w) Workplace" (DIALOG).

In the bibliography and project descriptions that follow, the cited sources that have an ED number are abstracted in RIE and available from EDRS. Those with a clearinghouse accession number beginning with CE will be available from EDRS in the near future. (For more information about ERIC, contact the ERIC Clearinghouse on Adult, Career, and Vocational Education, listed on p. 39.)

Other Databases

Other databases that can be consulted for information on workplace literacy include *Dissertation Abstracts Online* (DAO) and *ABI/Inform*. DAO provides online and CD-ROM access to the same information about dissertations that appears in the print index *Dissertation Abstracts International*. Although there are still only a few dissertations on workplace literacy, it is likely that more will appear in the future. ABI/Inform is the major source of journal literature covering areas of interest to the business community. Approximately 800 primary publications in business and related fields are currently scanned for inclusion in ABI/Inform. Because ERIC is restricted to education-related literature, this source includes some items not captured by ERIC.

An Organizing Framework

Expansion of the workplace literacy resources has made it possible to classify the information according to categories. The framework shown in figure 1 was developed in an effort to "make sense of" the rapidly expanding information base. It can be used to distinguish the types and kinds of available materials as well as to locate the most appropriate resources. An advantage of the framework is its flexibility. As the resource base has expanded, categories have been added to it, and it will undoubtedly continue to change as additional types of resources emerge. (For an earlier version of the framework, see Imel 1991.)

GENERAL INFORMATION

- Definition/Description
- Information Analysis/Synthesis
- Critical Perspectives

RESEARCH

- Reviews of Research
- Literacy Requirements of the Workplace
- Program Development and Implementation
- Other

EVALUATION AND ASSESSMENT

CURRICULUM AND INSTRUCTIONAL MATERIALS

GUIDELINES FOR PROGRAM DEVELOPMENT

PROGRAM DESCRIPTIONS

POLICY INFORMATION

RESOURCE LISTS/BIBLIOGRAPHIES

Figure 1. Workplace literacy resources: An organizing framework

ANNOTATED BIBLIOGRAPHY OF SELECTED RESOURCES

The framework described in the previous section is used here to organize selected resources in workplace literacy. The intent is to describe exemplary resources issued in the last 4 years as well as to demonstrate the breadth of available workplace literacy resources. In some instances, resources are included on the basis of their uniqueness, that is, they are either distinctive or represent an emerging area in the literature. Some resources could fit in more than one of the framework's categories, but they are placed in the one that relates most closely to their major emphasis.

General Information

Definition/Description

Alvarez, C. "An Experienced Worker's View of the Workplace." *Vocational Education Journal* 67, no. 3 (March 1992): 34-35.

A production foreman's account of what is needed for success in the workplace, including training, provides a perspective on the changing workplace and the need for training.

Mitchell, C. J. "Real-World Basics." *Training* 28, no. 2 (February 1991): 60-64.

Describes the experiences of a company that discovered much of its work force lacked basic math ability.

Taylor, M. C.; Shahet, L; and MacLead, C. "Workplace Basic Skills Training: A Viewpoint from Business, Labour and Education." *Learning Magazine* 6, no. 1 (1992): 12-16.

Perspectives of three Canadians are presented in this article that describes positions, viewpoints, and concerns with the field of workplace literacy.

Zemke, R. "Workplace Illiteracy: Shall We Overcome?" *Training* 26, no. 6 (June 1989): 33-39.

Directed toward trainers and employers, this article provides some statistics about illiteracy rates and job skill levels and reports on the situation in specific companies in order to create awareness of the connection between literacy levels and productivity and economic competitiveness.

Information Analysis/Synthesis

Delker, P. V. *Basic Skills Education in Business and Industry: Factors for Success or Failure. Contractor Report*. Washington, DC: Office of Technology Assessment, January 1990. (ED 337 587)

Developed as a background paper for OTA's report, *Worker Training: Competing in the New International Economy*, this review of workplace basic skills research and practice identifies factors contributing to program success or failure.

Forlizzi, L. A. *Adult Literacy in the United States Today*. University Park: Institute for the Study of Adult Literacy, Pennsylvania State University, 1989. (ED 317 757)

Addresses issues related to the problem that many U.S. citizens do not have literacy skills adequate to meet their needs and ambitions. In addition to an overview of the problem, it highlights the types of literacy services and available providers.

Mikulecky, L. "Basic Skills Impediments to Communication between Management and Hourly Employees." *Management Communication Quarterly* 3, no. 4 (May 1990): 452-473.

Examines increased print communication demands in business organizations and identifies three employee needs: (1) long-term support to move from illiteracy to productive skill levels; (2) basic skills training integrated with regular job training; and (3) short-term targeted training or access to redesigned documents and job performance aids.

Office of Technology Assessment. ***Worker Training: Competing in the New International Economy***. Washington, DC: OTA, 1990. (ED 326 622)

The chapter, "Basic Skills and the Workplace," drawn largely from Paul Delker's background paper, describes workplace basic skills demands and provides an overview of workplace-oriented programs. It concludes with some implications for policy.

Critical Perspectives

Darrah, C. N. "The Rhetoric of Skill Requirements." Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, California, April 1992. (ED 346 284)

Explores the consequences of the "rhetoric of skill requirements" for how work is conceptualized and its implications for education. Examines the assumptions about the nature of people and jobs, how tasks are performed, and how work is shaped by its context.

Edlund, J. K. "Breaking the Cycle of Illiteracy in America: Moving beyond the Status Quo." ***Future Choices*** 3, no. 3 (Spring 1992): 7-29.

The first section of this extensive article reviews many of the previous and current forces that have resulted in the present policies on workplace literacy. Federal initiatives such as America 2000 and SCANS are critically analyzed.

Galin, J. R. "What Can Workplace Literacy Programs Realistically Be Expected to Accomplish, and How Do We Determine What This Should Be?" Paper presented at the Responsibilities for Literacy Conference, Pittsburgh, Pennsylvania, September 1990. (ED 330 830)

Poses questions that should be asked when planning workplace literacy programs, suggesting that the answers may have profound consequences for the ways in which service providers plan workplace literacy programs.

Garay, M. S. ***Workplace Literacy in the 90's: Definitions, Descriptions, Opportunities, and Cautions***. Unpublished paper. Baton Rouge: English Department, Louisiana State University, [1992]. (ED 349 406)

Describes problems and unexamined assumptions associated with workplace literacy programs and policies, particularly those related to assessment and evaluation.

Hull, G. ***Hearing Other Voices: A Critical Assessment of Popular Views of Literacy and Work***. Berkeley: National Center for Research in Vocational Education, University of California, November 1991. (ED 338 865)

Analyzes the popular, dominant myths of literacy and work and presents alternative points of view and critical reassessments.

Jurmo, P. "Good News and Bad News about Workplace Literacy Efforts in the United States." Keynote address presented at the Job Training Partnership Act Workplace Literacy Forum, San Antonio, Texas, May 3, 1991. (ED 340 845)

Examines good news and bad news in the six areas of workplace literacy efforts: awareness, curriculum development, collaboration, staff training, research and evaluation, and funding.

"Myth #15: Management and Labor Agree on Literacy Goals." ***The Literacy Beat*** 4, no. 3, August 1991. (ED 336 547)

This issue of the Education Writers Association newsletter focuses on the differing views of workplace literacy efforts held by labor unions and company management.

Stein, S. G. "Tradition and Change: The Role of Workplace Education in the Transformation of the Workplace." Paper presented at the Annual Meeting of the American Association for Adult and Continuing Education, Montreal, Canada, October 1991. (ED 345 103)

Examines the role of workplace education programs in the transformation of the workplace. Includes a chart comparing traditional and high-performance work organizations and a discussion of the experiences in United Electric Controls, a company that won the North American Shingo Prize for Quality in Manufacturing in 1990.

Weisman, J. "Some Economists Challenging View that Schools Hurt Competitiveness." ***Education Week*** 11, no. 11 (November 13, 1991): 1, 14-15.

_____. "The Education Smokescreen." ***Phi Delta Kappan*** 73, no. 9 (May 1992): 721.

These articles present information suggesting that skills shortages among high school graduates are not related to diminishing competitiveness of the U.S. work force.

Research

Reviews of Research

Mikulecky, L., and D'Adamo-Weinstein, L. ***How Effective Are Workplace Literacy Programs?*** Unpublished paper. Bloomington: Indiana University, 1991. (ED 330 891)

Reviews current research on workplace literacy for the purpose of examining program evaluation. Concludes that few programs report rigorous evaluations and reports trends noted among programs for which more demanding evaluations have been performed.

Literacy Requirements of the Workplace

Carnevale, A. P.; Gainer, L. J.; and Meltzer, A. S. ***Workplace Basics: The Essential Skills Employers Want.*** San Francisco: Jossey-Bass, 1990. (ED 319 979)

A study conducted by the American Society for Training and Development (ASTD) with funding from the U.S. Department of Labor (DOL) responded to the question What do employers want? This book provides an in-depth understanding of a comprehensive list of 16 skills that employers believe are workplace basics.

Grover, J. G.; Seager, A. J.; and deVries, D. K. ***Research in Workplace Literacy: The Level of Literacy Required in Specific Occupations. Final Report.*** Hampton, NH: RMC Research Corporation, 1990. (ED 319 907)

Reports on a workplace literacy research project funded by the U.S. Department of Labor that developed and field tested a method for assessing the literacy level required in two entry-level jobs at each of three manufacturing sites and three hospital sites. Includes a review of previous research in workplace literacy.

Heitner, K. L; Forrant, R.; and Neveu, F. R. ***What Do Workers Have to Say? Skills and Technological Change.*** Springfield, MA: Hampden County Employment and Training Consortium, October 1990. (ED 327 719)

A survey of workers' perspectives on skills usage and the effects of technological change in the workplace confirmed that workers believe that changes in technology will require greater math usage and greater usage and higher levels of reading skills on the job.

Passmore, D. L; Garcia, T.; Silvis, B. L.; and Mohamed, D. A. ***Requirements for Workplace Literacy: An Interindustry Model.*** University Park: Department of Vocational and Industrial Education, University of Pennsylvania, 1990. (ED 327 643)

Demonstrates analytical methods for relating the production and consumption of goods and services in an economy to the requirements for literacy among its workers. Uses an economic model developed by economist Wassily Leontief, called the interindustry model, to expose the links among production, consumption, employment, and literacy.

Squires, P., and Ross, R. G. "Literacy Requirements for Customer Service Jobs." Paper presented at the Annual Convention of the American Psychological Association, Boston, Massachusetts, August 1990. (ED 328 802)

Reports on the results of a study that identified the reading and mathematics job requirements for 3 sales and service jobs, using 296 employees of a marketing division of a large telecommunication company as subjects.

Program Development and Implementation

Barker, K. C. ***Evaluation of a Workplace Basic Skills Program: An Impact Study of AVC Edmonton's 1990 Job Effectiveness Training Programs at Stelco Steel. Report Summary.*** Edmonton: Alberta Vocational College, April 1991. (ED 335 447)

Reports on the evaluation of a pilot workplace basic skills program that was evaluated in terms of impacts or changes from the perspective of the four major stakeholder groups: the learners, the employers, the institution, and the government.

Beder, H., and others. ***Project RISE: Workplace Literacy Education in Context.*** New Brunswick, NJ: Graduate School of Education, Rutgers University, October 1992.

Originally designed to assist Project RISE, a federally funded workplace literacy program, in assessing its past performance and in planning for the future, this research project shifted focus when Project RISE was not refunded. The research was expanded to the more general goal of helping staff understand their collective experience in a way that might help them to function more effectively in the future. Report includes themes and subthemes related to the project as well as lessons learned.

Gowen, S. G. ***The Politics of Workplace Literacy: A Case Study.*** New York: Teachers College Press, 1992.

This ethnographic study, based on the author's dissertation, uses worker perspectives to examine the effectiveness of a functional context approach to workplace literacy training. Proposes adopting a model that would acknowledge differences in perspectives about the purposes of workplace literacy and incorporate legitimate employee needs and concerns into the curriculum.

Kutner, M.; Sherman, R. Z.; Webb, L.; and Fisher, C. J. ***A Review of the National Workplace Literacy Program.*** Washington, DC: Pelavin Associates, May 1991. (ED 333 199)

Reports on the results of a study of projects funded during the first year of operation of the National Workplace Literacy Program. A review of research literature, analysis of data from 29 sites, and site visits to six projects provided data for the study. Includes recommendations to improve program effectiveness.

Lewe, G. ***Needs Assessment for the Construction Industry in B. C. & the Yukon.*** Vancouver: British Columbia Construction Industry Skills Improvement Council, June 1992.

A three-part basic skills needs assessment developed a picture of the basic skills levels and needs of the construction industry in British Columbia and the Yukon. Information was collected through interviews with business managers and managers of other programs provided through joint labor/management initiatives, a questionnaire administered to training plan coordinators, and focus groups of selected workers.

Mikulecky, L., and Lloyd, P. ***Evaluating the Impact of Workplace Literacy Programs. Results and Instruments from the NCAL Workplace Literacy Impact Project.*** Bloomington: School of Education, Indiana University-Bloomington, July 1992. (ED 348 579)

Reports on the results of a National Center for Adult Literacy study designed to develop an impact assessment model for workplace literacy programs and to produce data on the impact of programs at two sites. A secondary goal was to refine the model for use at other sites. In addition to the model, the report includes sample forms and instructions for custom designing evaluation materials.

Mulcrone, P. "An Inquiry into Instructional and Administrative Practices in Workplace Literacy: A Collaborative Cycles Model." Ed.D. dissertation, Northern Illinois University, 1990.

Used grounded theory methodology to develop an administrative and instructional model for workplace literacy. Data collection procedures included interviews with instructors, adult educators, corporate representatives, and policy makers as well as observations of workplace programs. A cyclical model emerged that is sequential, repetitive, and interactive.

Sperazi, L.; Jurmo, P.; and Rosen, D. ***Participatory Approaches to Evaluating Outcomes and Designing Curriculum in Workplace Education Programs.*** Newton Highlands, MA: Evaluation Research, December 1991. (ED 344 503)

This report details what came to be known as the "outcome study" and the "curriculum study" of the Massachusetts Workplace Education Initiative Cycle 4 Evaluation, as well as the "termination study," which developed when one company closed and another stopped its education program midway through the outcome study. Outcome and curriculum studies are reported for six sites and recommendations for future evaluation and technical assistance are offered.

Taylor, M. C., and Lewe, G. ***Basic Skills Training: A Launchpad for Success in the Workplace.*** Ottawa, Ontario: Adult Basic Education Department, Algonquin College, December 1990. (ED 322 368)

Reports on the results of the Literacy Task Analysis Project, the purpose of which was to develop a set of procedures for conducting a literacy task analysis. The resulting procedures were based on a review of current practices and literacy task analysis conducted in five settings.

Other

Chisman, F. ***The Missing Link: Workplace Education in Small Business.*** Washington, DC: Southport Institute for Policy Analysis, 1992.

Details the results of a 2-year study designed to reveal what small businesses are doing to upgrade their workers' basic skills and the factors and barriers that account for their action or inaction in this area. Data were collected through a combination of mail and telephone surveys of small and medium-sized firms and case studies.

Foucar-Szocki, D. L. ***Beyond Training: A Field Test of the American Society for Training and Development's Workplace Basics.*** Staunton, VA: Education and Training Corporation, 1992. (ED 343 002)

Reports on the results of a project that tested whether the ASTD Workplace Basics model was feasible, whether it was useful to employees and management, and whether it could be transferred to other workplaces.

Meehan, A. L. "The Effect of Classroom Environment on Achievement in a Workplace Literacy Program." Ed.D. dissertation, Pennsylvania State University, 1990.

Investigated the relationship of social environment of workplace literacy classrooms to student achievement using participants in the R.O.A.D. to Success project as subjects. Although there was some evidence of a relationship between social environment and achievement, one of the stronger predictors of gains on content skills was task orientation.

Merrifield, J.; Norris, L; and White, L. ***"I'm Not a Quitter!" Job Training and Basic Education for Women Textile Workers.*** Knoxville: Center for Literacy Studies, University of Tennessee, 1991. (ED 343 012)

A case history of one group of women workers who, after losing their jobs in 1988 when a major apparel manufacturer closed a plant, took part in some aspect of the Job Training Partnership Act training program following the closing. Includes a series of recommendations.

Yaffe, J. "Workplace Literacy in the Local Public Sector." ***Public Personnel Management*** 21, no. 1 (Spring 1992): 227-260.

This article reports on a study designed to demonstrate the need for work force literacy programs in the public sector. A survey was sent to administrative offices in the county and city of Los Angeles to ascertain if either agency had administrative policies addressing work force and workplace literacy for the organization, as a whole. Also, open-ended questionnaires were sent to five noted national literacy experts.

Evaluation and Assessment

Albright, K., and Strumpf, L. "Measuring What Trainees Know: It's Not Just Academic." ***The Partnership Advantage***, August 1992, pp. 6-7.

Discusses testing of basic skills in terms of norm- and criterion-referenced tests. Includes a list of questions that should be asked prior to designing a program or selecting a test.

Askov, E. N. "Approaches to Assessment in Workplace Literacy Programs: Meeting the Needs of All the Clients." ***Journal of Reading***, forthcoming.

Describes how to include the perspectives of all stakeholders (learners, union partners, management, provider organization) in assessment in workplace literacy programs. Also describes other considerations for the instructor.

Barker, K. C. ***A Program Evaluation Handbook for Workplace Literacy.*** Ottawa, Ontario: National Literacy Secretariat, October 1991. (ED 339 917)

Provides various options and processes that can be used for formal evaluation of workplace literacy programs. Its six sections include background information as well as steps in the evaluation process such as information gathering and analysis.

Jurmo, P. ***A Team Approach to Evaluation and Planning: A Handbook for Workplace Educators in a Changing World. Pilot Edition.*** Jersey City, NJ: Literacy Partnerships, March 1992.

This handbook proposes a collaborative, team approach to evaluating workplace literacy programs with the goal of enabling programs to accomplish two important objectives: (1) getting information they need to improve themselves and gain support from sources of funding and other resources and (2) establishing a planning and communication vehicle through which the host institution can transform itself into a high-performance work organization.

Sarmiento, T. "Do Workplace Literacy Programs Promote High Skills or Low Wages? Suggestions for Future Evaluations of Workplace Literacy Programs." ***Labor Notes*** (a monthly newsletter of the Center for Policy Research of the National Governors Association) July 1991.

Describes how evaluations of workplace literacy projects can support the development of high skills if they examine program impact on employer practices as well as learner outcomes. Stresses the need to support those approaches that lead to "high skills."

Short, D. J., and Grognet, A. G. ***A Review of Workplace Literacy Tests and Testing.*** Washington,

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DC: Center for Applied Linguistics, September 1988. (ED 322 292)

This paper, prepared for the Hudson Institute, discusses various definitions of literacy, the feasibility of using commercial tests to help determine the literacy skills of workers, and the necessity for determining the job literacy requirements for employment positions. It also evaluates the tests most commonly used in the workplace and offers suggestions for composing a workplace test.

Sticht, T. ***Evaluating National Workplace Literacy Programs.*** El Cajon, CA: Applied Behavioral and Cognitive Sciences, April 1991. (ED 334 431)

A discussion of evaluation aimed at helping workplace literacy programs meet the requirements of the rules and regulations governing the National Workplace Literacy Program. The process outlined should also help program operators more effectively design, develop, implement, operate, and improve workplace literacy programs.

Taylor, M. C. "Workplace Literacy Assessment Tools." Paper presented at the Ninth Annual Conference of the Canadian Association for the Study of Adult Education, Vancouver, British Columbia, June 1990. (ED 330 885)

Reviews three literacy instruments that can be used in workplace basic skills programs. Suggests that criterion-referenced tests should be developed for employees in basic workplace training, using specific work-related skills.

Curriculum and Instructional Materials

Askov, E. N. "Curriculum Design for Workplace Literacy." ***Adult Learning*** 3, no. 8 (June 1992): 12-13.

Provides suggestions for designing custom-made basic skills instruction using work-related materials.

Chase, N. D. ***The Hospital Job Skills Enhancement Program: A Workplace Literacy Project. Curriculum Manual.*** Atlanta: Center for the Study of Adult Literacy, Georgia State University and Grady Memorial Hospital, March 1990. (ED 328 666)

Describes the curriculum portion of the Hospital Job Skills Enhancement Program (HJSEP); the HJSEP curriculum, which was based on the whole language approach, was designed to improve the literacy skills of entry-level workers in housekeeping, food service, and laundry departments. Presents a detailed description of the literacy audit and curriculum development process. Includes copies of curriculum units and assessment instruments.

Conrath, J. and others. ***A Basic Skills Core Curriculum for the Manufacturing Industry.*** Des Plaines, IL: Adult Learning Resource Center, Community Consolidate School District 54, 1991. (ED 339 872)

This competency-based curriculum guide for basic skills instruction lists core competencies and core skills in the areas of reading, writing, math, and oral communication. Guidance in using the core curriculum is provided, with information and forms for conducting a job task/basic skills analysis, steps in writing a customized curriculum, and sample syllabi.

Cook, C., and Godley, V., eds. ***Workplace Literacy: A Curriculum Development Guide.*** Wilmington, MA: Altron, Inc.; Greater Lowell, MA: Cambodian Mutual Assistance Association, December 1989. (ED 329 132)

Guide describes the process used to design, establish, and operate a workplace literacy program for English as a second language adults. A participatory curriculum development process is explained including developing issues of interest to the learner into lessons.

Dowling, W. D. and others. ***Workplace Literacy for World Class Manufacturing. Final Report.*** Columbus: College of Education, The Ohio State University; Inland Fisher Guide Division of General Motors and UAW Local 969, May 1992. (ED 347 302)

Describes curriculum/instructional development process using metacognitive and whole language approaches. Contains formats for developing lessons in mathematics and communication skills using these approaches as well as sample lesson plans and job context instructional materials used to implement lessons.

Educational Testing Service. ***ETS Applied Skills Series.*** New York: Simon and Schuster, n.d.

Series includes three workbooks that are organized according to the three literacy domains of document, prose, and quantitative: ***Document Skills for Life and Work, Reading Skills for Life and Work,*** and ***Number Skills for Life and Work.*** Each workbook provides lessons that are based on work-related tasks such as identifying and using information

located in materials, interpreting materials, and completing an order form.

Finger Lakes Regional Education Center for Economic Development. Mount Morris: NY, 1989.

The Finger Lakes Regional Education Center for Economic Development has developed the following workplace curricula:

Farrell, E. J. *Workplace Mathematics, Modules 1 & 2. A Working Curriculum*, 1989. (ED 311 155)

Huggins, K. *Workplace Oral Communications I. A Working Curriculum*, 1989. (ED 311 152)

Huggins, K. *Workplace Written Communications Modules: I-IX. A Working Curriculum*, 1989. (ED 311 153, Modules I-IV; ED 311 154, Modules V-IX)

Geared toward persons with midlevel literacy, they are intended to move the learner toward the 12th-grade level. Use workplace examples but may not be applicable to many job contexts.

Mikulecky, L., and Philippi, J. W. *Strategic Skill Builders for Banking*. Washington, DC: American Bankers Association; New York: Simon and Schuster, 1990.

This 12-module series based on the functional context approach can be used to teach people in a variety of job settings. Uses learned exercises that teach job-related thinking skills. Includes job skills lessons with parallel life skills lessons enabling learners to practice skills both on the job and in daily life.

Moore, L. *Improving Workforce Basic Skills: The Foundation for Quality*. White Plains, NY: Quality Resources, 1992. (ED 343 022)

Uses adult learning principles to describe an approach to basic skills training in the workplace. Book is built around a problem-solving approach and includes information on instructional systems design. Also advocates the development of "freedom-to-learn" continuum within organizations.

New Mexico State University. *Step Ahead. A Partnership for Improved Health Care Communication*. Las Cruces: NMSU, 1990.

The Partnership for Improved Health Care Communication produced a series of modules designed to improve various communication skills of workers in health care settings. All are aimed at individuals with midlevel literacy skills and all use a job context approach to instruction. Modules include—

Bernhardt, S., and Laroche, P. *The Write Stuff: Memos and Short Reports*, 1991. (ED 343 026)

Bernhardt, S. and others. *Communication for Supervisors*, 1991. (ED 343 024)

Dutson-Mallory, C., and Bernhardt, S. *Effective Presentations. Communicating in Health Care Settings*, 1991. (ED 343 023)

Dutson-Mallory, C. and others. *Straight Talk. Communicating in Health Care Settings*, 1990. (ED 343 025)

Paradigm Basic Skills Program. Eden Prairie, MN: Paradigm Press, 1991.

The Paradigm materials focus on preparing learners to solve reading, writing, and math problems they will encounter in training programs and on the job by teaching learners the strategies behind the skills. Each is organized around common job functions and allow for either group or independent instruction. Program includes the following:

Brooks, L. *Math for Workplace Success*, 1992.

McLean, G., and Lyons, A. *Writing for Workplace Success*, 1991.

Park, R., and Olson, R. *Reading for Workplace Success*, 1991.

Quality Resources, White Plains, NY.

Curriculum materials from Quality Resources can be used to develop skills in problem solving and statistical process control. The following resources will be used most effectively with learners who have midlevel reading skills:

Amsden, R. T.; Butler, H. E.; and Amsden, D. M. *SPC Simplified: Practical Steps to Quality*, 1989. (Designed to teach statistical process control procedures in the manufacturing setting.)

Amsden, D. M.; Butler, H. E.; and Amsden, R. T. *SPC Simplified for Services: Practical Tools for Continuous Quality Improvement*, 1991.

Kelly, M. R. *Everyone's Problem Solving Handbook: Step-by-Step Solutions for Quality Improvement*, 1992.

Rush, R. T. "Performance-Related Reading: Teaching Basic Occupational Literacy Competencies." *Adult Literacy and Basic Education* 14, no. 3 (1990): 228-237.

Describes occupational reading competencies that should be taught in workplace literacy programs and the role of work tasks simulations in helping learners understand the importance of reading in work settings.

Saumweber, J., and others. *ESL Workplace Literacy Curriculum for a JTPA/Family English Literacy Demonstration Project.* Lao Family Community of Minnesota, Inc. [1991]. (ED 339 248)

Describes the curriculum portion of a program designed to assist refugees with limited English proficiency to become economically self-sufficient as quickly as possible. Four levels of instruction are offered and content includes workplace field trips, use of native language for cultural discussion of workplace appropriate behavior, emphasis on workplace language and basic literacy skills taught in other program courses, and curriculum adaptability to different jobs. Includes key competencies and instructional units.

Soifer, R. and others. *The Complete Theory-to-Practice Handbook of Adult Literacy. Curriculum Design and Teaching Approaches.* New York: Teachers College, Columbia University, 1990.

Authors have used approaches described in this book successfully in an ongoing workplace literacy program in the automotive industry. Uses insights gained from the whole language movement to identify an educational structure that is sensitive to needs of adult learners.

Western Pennsylvania School for the Deaf. *Workplace Concepts in Sign and Text. A Computerized Sign Language Dictionary.* Pittsburgh: WPSD, [1991]. (ED 342 897)

A dictionary of essential vocabulary, signs, and illustrations of workplace activities to be used to train deaf or hearing impaired adults. Contains more than 500 entries with workplace-relevant vocabulary, each including in illustration of the signed word or phrase in American Sign Language, a description of how to make the sign, a definition of the word or phrase, a series of work-related sentences using the word/phrase, and an illustration demonstrating the meaning of words that can be pictured.

Guidelines for Program Development

Askov, E. N., and Van Horn, B. H. "Adult Education and Workplace Literacy: Designing Customized Basic Skills Instruction." *Adult Basic Education*, forthcoming.

This article provides suggestions for adult educators that can be used in designing customized basic skills instruction using work-related reading materials.

Askov, E. N.; Aderman, B; and Hemmelstein, N. *Upgrading Basic Skills for the Workplace.* University Park: Institute for the Study of Adult Literacy, Pennsylvania State University, 1989. (ED 309 297)

Intended for trainers of literacy providers and practitioners in the field, this manual explains how to develop a workplace literacy program and market it to employers.

Carnes, J. *Northeast Texas Agricultural Literacy Network (A-Lit-Net: A Rural College Partnership Project). Handbook for Customizing Workplace Literacy to Employer Training Needs.* Mount Pleasant: Northeast Texas Community College, June 1991. (ED 333 916)

Handbook describes five stages in analyzing business literacy needs and developing relevant curricula. Includes information on establishing a technical advisory committee representing various stakeholders and the importance of analyzing local labor market information. Project was part of the American Association for Community and Junior Colleges' national rural workplace literacy project.

Carnevale, A. P.; Gainer, L. J.; and Meltzer, A. S. *Workplace Basics Training Manual.* San Francisco: Jossey-Bass, 1990.

Produced as a part of the ASTD-DOL study, this manual includes step-by-step instructions for establishing and implementing a program to teach the basic skills necessary in the workplace, using the applied approach that links learning to improved job performance. Seven steps of program development are contained in the guide, which is filled with sample forms and checklists and includes lists of recommending readings.

Manley, D., and others. ***Workplace Educational Skills Analysis Training Guide.*** Madison: Wisconsin Workplace Partnership Training Program, Wisconsin Department of Education, 1991. (ED 334 442)

Focusing on the program development step of skills analysis, this guide provides step-by-step instructions in workplace skills analysis. Appendices include forms for use in the process.

Mikulecky, L.; Henard, D.; and Lloyd, P. ***A Guidebook for Developing Workplace Literacy Programs.*** Indianapolis: Office of Workforce Development, Indiana Government Center; Bloomington: School of Education, Indiana University, [1992]. (ED 348 580)

Based on the experiences of Indiana's Model Workplace Literacy Program, this guide presents a strategy for developing workplace literacy training programs for state employees. It includes descriptions and samples of assessment methods, task analyses, instructional courses and materials, recruitment strategies, evaluation tools, and tips for effective program operation.

Rees, L. ***Setting Up Workplace Basic Skills Training. Guidelines for Practitioners.*** London, England: Adult Literacy and Basic Skills Unit, [1990]. (ED 339 909)

Guide provides information on basic skills needs and workplace programs and issues from a British perspective. Practical suggestions and advice are included on a number of topics related to program development, including charts presenting selling points, sticking points, and possible responses when making the case for basic skills training to managers, unions, and workers.

Sarmiento, A., and Kay, A. ***Worker-Centered Learning: A Union Guide to Workplace Literacy.*** Washington, DC: Human Resource Development Institute, AFL-CIO, 1990. (ED 338 863)

This guide describes several union-sponsored workplace education programs and how a union can plan and operate a worker-centered literacy program. Includes information on outside funding sources, useful books and articles, and a listing of the labor organizations whose programs are mentioned in the guide.

Seitchik, A., and Zoernitsky, J. with C. Edmonds. ***Employer Strategies for a Changing Labor Force: A Primer on Innovative Programs and Policies.*** Washington, DC: National Commission for Employment Policy, July 1990. (ED 326 711)

Using examples from workplace programs, Chapter 3, "Establishing Workplace Basic Skills Training Programs," describes strategies for program development. Includes chart depicting role of workplace basic skills training in overall plan for human resource development.

Taylor, M., and Lewe, G. ***Literacy Task Analysis. A How to Manual for Workplace Trainers.*** Ottawa: Adult Basic Education Department, Algonquin College, December 1990. (ED 337 580)

A comprehensive guide to the program development step of task analysis. Presents five practical examples of literacy task analysis including worksheets and forms that can be used in the workplace. A series of study questions are included to enable the manual to be used as a workbook.

Taylor, M. C.; Lewe, G. R.; and Draper, J. A. ***Basic Skills for the Workplace.*** Toronto: Culture Concepts, 1991. (ED 333 180)

A practitioner's guide to developing literacy training programs for workers that contains 28 chapters divided into four parts: understanding the need for workplace literacy, identifying workplace training needs, examples of practice in workplace basic skills training, and discovering approaches for program development.

Thomas, R. J., and others. ***Job-Related Language Training for Limited English Proficient Employees: A Handbook for Program Developers and a Guide for Decision Makers in Business and Industry.*** Washington, DC: Development Assistance Corporation, 1991. (ED 342 277)

This two-part guide is designed to assist employers who desire to retain, promote, or retrain their limited-English-proficient (LEP) work force to meet the challenge of training and adaptation to job restructuring. Contains manuals for both English-as-a-second-language program developers and business/industry decision makers. Glossaries accompany both manuals.

U.S. Department of Education. ***Workplace Education: Voices from the Field.*** Washington, DC: Division of Adult Education and Literacy, Office of Vocational and Adult Education, USDE, November 1992.

These proceedings of the National Workplace Literacy Program Project Directors Meeting held in September 1991 contain project directors' insights about workplace literacy program development in a number of areas, including partnership development,

curriculum development, recruitment, staff development, and assessment and evaluation.

Workplace Education from A to Z: A Handbook for SEIU Local Union Leaders. Washington, DC: Service Employees International Union, 1992. (ED 347 395)

Designed to provide guidance for the local union setting up a worker education program from basic skills to job training, this publication is based on the experiences of many different Service Employees International Union locals with many diverse programs. It shares lessons learned, gives warnings and directions, and explains solutions for successful programs.

Program Descriptions

Note: Reports containing program descriptions of projects funded by the National Workplace Literacy Program can be found by referring to Appendix A; also, several projects are described in the next section.

Barnett, L., ed. *Rural Workplace Literacy: Community College Partnerships.* Washington, DC: American Association of Community and Junior Colleges, 1991. (ED 338 300)

Contains descriptions of 10 grants funded as a part of the American Association of Community and Junior Colleges' national workplace literacy demonstration project, designed to raise awareness of the link between local economic development and basic workplace skill performance and to stimulate a local leadership initiative around a community-wide effort to raise worker performance levels.

Finegan, J. "The Education of Harry Featherstone." *Inc.* (July 1990): 57-66.

The conversion of Will-Burt Co., a manufacturing plant in Orrville, Ohio, from a Ford-owned company into am employee stock ownership company is described in this article. The role of education, especially in the area of computation, is discussed in the success of the company's quality control program.

Mitchell, C. J. "Real-World Basics." *Training* 28, no. 2 (February 1991): 60-64.

Describes what one company did, when almost by accident, it discovered that much of its work force lacked basic math ability.

Riessman, F. and others. *The Workplace Literacy Program of the Central Labor Council and the Consortium for Worker Education.* New York: Center for Advanced Study in Education, City University of New York, September 1988. (ED 340 255)

Reports on 15 programs undertaken by 16 unions that are part of the New York City Central Labor Council-Consortium for Worker Education Workplace Literacy Program. Includes information on different and evolving philosophies, pedagogical questions, and administrative concerns raised by the workplace literacy movement. Appended materials provide a variety of sample lesson plans, evaluation procedures, programs objectives and student work.

Roane State Community College. *Roane State Community College Workplace Literacy Program Report. AACJC Rural College Partnership.* Harriman, TN: RSCC, June 1991. (ED 336 149)

Reports on the Roane State Community College Workplace Literacy Program that was part of the American Association and Community and Junior Colleges' rural workplace literacy project. Focus was on training community volunteers to act as tutors for a computer-assisted literacy instructional package that was used in the program.

U.S. Department of Education. *Workplace Literacy: Reshaping the American Workforce.* Washington, DC: Division of Adult Education and Literacy, Office of Vocational and Adult Education, USDE, May 1992. (ED 347 354)

Traces the National Workplace Literacy Program as it has been implemented over the first three funding cycles, identifies best practices, and discusses common barriers to success. Descriptions of five projects considered to be exemplary are included.

Policy Information

Commission on the Skills of the American Workforce. *America's Choice: High Skills or Low Wages!* Rochester, NY: National Center on Education and the Economy, 1990. (ED 323 297)

Reports on the slow growth of U.S. productivity by examining employers' perceptions of skill shortages as well as how individuals are prepared for the work force. Includes a series of recommendations for achieving a workplace that requires high skills.

Integrating Basic Skills in the Workplace: From Policy to Practice: A Seminar of the National Governors Association's State Literacy Exchange. Washington, DC: Center for Remediation Design, 1990. (ED 330 797)

Provides background information for a seminar discussion about basic skills integration in the workplace and is intended to frame major policy questions for participants. Raises nine issues for discussion.

Park, R. J., and Olson, R. *Minnesota's Adult Literacy: Policy Directions and Impact on the Workplace.* Minneapolis: Minnesota Association for Continuing Adult Education, University of Minnesota, 1989. (ED 334 419)

Examines adult education issues in Minnesota, especially in terms of the workplace. Issues discussed include the role of literacy training in helping displaced workers and underemployed, and the mechanics of using current literacy tests as criteria for hiring and promotion. Reviews briefly the roles of various stakeholders in improving literacy in the state.

Silvanik, R. A., ed. *Meeting the Goal of a Literate America: The State Response. State Policy Reports.* Washington, DC: Center for Policy Research, National Governors Association, 1990. (ED 339 921)

Contains 10 articles, written by national and state leaders in the adult literacy field, that pose challenges confronting the adult literacy system. Several of the articles (for example, "Nine Points about Organized Labor's Participation in State Workplace Literacy Initiatives" by Sarmiento) have implications for workplace literacy.

Resource Lists/Bibliographies

Business Council for Effective Literacy. *Brief Series.* New York: BCEL, various dates. (ED 344 075 to ED 344 081)

Briefs contain annotated lists of materials or resources on the following topics: "Computers and Literacy: Curricula and Guides"; "Small Business"; "The U. S. Commercial Motor Vehicle Safety Act of 1986"; "Health Care Industry"; "Hotel and Food Service Industries"; "National Technical Assistance Organizations"; and "Workforce and Workplace Literacy: Selected References."

Lane, M. A. *Workforce Literacy: Employment and Workplace Materials. A Guide to Recent and Recommended Books.* Philadelphia, PA: Free Library of Philadelphia, October 1991. (ED 343 459)

Describes and presents materials that are appropriate for work force literacy programs, defined as literacy efforts that include basic, interpersonal, and decision-making skills. The 20 books selected and annotated for this guide were all published between 1989 and 1991.

Proper, L. *Workplace Literacy: A Selected Bibliography.* Columbus: Ohio Bureau of Employment Services, April 1992.

An up-to-date listing of over 450 workplace literacy-related publications, each indexed using one or more of the following terms: applied, general, policy, or research.

BEST COPY AVAILABLE

DESCRIPTIONS OF SELECTED PROGRAMS

Many descriptions of workplace literacy programs are available in the ERIC database. The programs chosen for description in this section have special features that illustrate innovative approaches to basic skills development and/or they encountered particular problems that provide useful information to program developers about what works and doesn't work. Another selection criterion was the availability of information about the program. Many programs currently in progress may have other approaches and practices that are not yet documented. The format for each description includes the following elements:

- Title
- Partners
- Special Features
- Target Population
- Source of Information
- Program Description
- Highs and Lows (successes and problems)
- Recommendations

• **Title:**	Workers' Education for Skills Training
• **Partners:**	Saskatchewan Federation of Labour Six Saskatchewan employers
• **Special Features:**	participatory learning strategies peer leadership
• **Target Population:**	union members
• **Source:**	O'Gorman, Lori A. S. *W.E.S.T. Pilot Project. Final Report.* Regina: Saskatchewan Federation of Labour, 1991. (ED 337 623)

Program Description

The Saskatchewan Federation of Labour (SFL) adapted Ontario Federation of Labour's BEST program to meet the special needs of low-literate workers in the province. W.E.S.T. (Workers' Education for Skills Training) was designed to address the following needs: more SFL members in the service sector than in manufacturing, the geographic isolation of sites, and the English as a second language (ESL) needs of Canada Natives. Based on the premise of literacy for

empowerment, W.E.S.T. focused on participatory learning. From six companies whose workers were SFL members (grain processor, government agency, steel company, hospital, mine, and hotel), 13 workers attended a 2-week residential training program for course leaders. They returned to their worksites certified to implement programs, which featured cooperative learning, self-pacing, confidentiality in regard to individuals' skill levels, and curriculum materials created and developed by participants.

Highs and Lows

A number of solutions were found to the problem of geographic isolation: (1) in workplaces with small numbers of participants, workers from nearby union worksites were added to the program; (2) a centralized location was used for instruction in some areas; and (3) Regional Colleges presented community-based programs in other areas.

Successful promotional activities were aimed at avoiding the stigma of "illiteracy." At workplace informational meetings, the "BEST for Us" video from Ontario explained the program to potential participants and supervisors; reading, writing, and math as useful skills for both work and home were emphasized. A poster stressing graphics rather than words used a rainbow symbolizing a "lifetime of opportunity," and "BEST of the WEST" buttons adapted from a poster motif were distributed in worksites.

The most difficulty was encountered in getting participants to make the transition from the passive learning style they associated with schooling to active learning centered on, directed, and controlled by participants.

Recommendations

- Programs should begin with the premise that low-literate persons already know how to learn; they have used coping skills for years.
- Training manuals should include more cross-cultural materials.
- Course leaders should have English communication skills and perhaps should know other languages in programs featuring ESL. They should respect other cultures and have a collective leadership style.
- More rigorous, documented evaluation of a program's effects on skill levels is needed to demonstrate its worth to employers.

- **Title:** SALSA (Southwest Advanced Learning System for Adults)
- **Partners:** Rio Salado Community College
  Motorola, Inc.
  In-kind assistance from Apple Computers, U.S. West Communications, Businessland Inc., University Communications Inc., University of Illinois
- **Special Features:** computer-assisted instruction
  satellite telecommunications
- **Target Population:** Motorola production line employees
- **Source:** *SALSA (Southwest Advanced Learning System for Adults) Pilot Project Research Report.* Phoenix, AZ: Rio Salado Community College, 1991. (ED 348 521)

Program Description

Project SALSA capitalized on several trends in its unique approach to workplace literacy: home computer use, family literacy, and productivity improvement through human resource development. Building on the known link between computer-assisted instruction and literacy enhancement, Macintosh microcomputers were placed in the homes of Motorola production line employees in Arizona. Those selected were identified by scores on the Tests of Adult Basic Education (TABE); eventually, 30 experimental subjects were paired with 30 participants in a reading program without computers. Rio Salado instructors trained the experimental group and some of their family members in the use of NovaNet, a software library at the University of Illinois accessed via satellite telecommunications. Following 14 hours of training, employees used home computers to access structured lessons in reading, language, math, spelling, and critical thinking. As evaluations showed, family members used the unstructured subsystem M-World more often, to access games, computer conferences, and information exchanges.

Highs and Lows

Assessment by the TABE showed some reading gains for the experimental group, influenced by the amount of time spent on the computer. Employees liked using computers and felt that their pride in learning and self-esteem were enhanced by the opportunity to study in the privacy of their homes and by sharing learning with family members. However, many felt that the initial NovaNet training was too fast paced. When hardware and software problems arose early in the project, local technical support was available, but later the only technical support was from the University of Illinois, a change viewed as unwelcome. The fact that Illinois is in a different time zone than Arizona limited the time the system was available to these users. Some did not understand what they were supposed to do with the home com-

puters, and complications from the workplace (for example, overtime required to fill orders related to the Persian Gulf War) limited computer use.

Recommendations

- Expert trainers to provide system training at a pace that ensures understanding
- Troubleshooters/technical support staff who are local and accessible
- A shared-cost purchase program to enable employees to buy the microcomputers in their homes
- A software library to ensure that computer use and learning continue after the project ends

• **Title:**	Workplace Literacy Instruction for College Preparation of Health Care Workers
• **Partners:**	Center for Advanced Study in Education/Institute for Occupational Research and Development/City University of New York New York City Central Labor Council, AFL-CIO Workplace Literacy Program
• **Special Features:**	college preparation preparation for placement examinations in reading, writing, and math National Workplace Literacy Program
• **Target Population:**	nurses' aides, home health aides, and health care paraprofessionals who belong to one of three unions
• **Source:**	Perin, D. *Workplace Literacy Instruction for College Preparation of Health Care Workers. Final Evaluation Report.* New York: CASE/IRDOE/CUNY, 1992. (ED 346 264)

Program Description

The shortage of health care workers for technical positions prompted this program designed to prepare health care paraprofessionals for college programs and advancement to these positions. Although the paraprofessionals had high school diplomas or equivalencies, their low literacy skills prevented them from entering college programs. The 153 participants, recruited through workplace fliers and union promotions, were screened through a writing assessment and were taught in union facilities 6 hours per week for 8 months, on their own time. The curriculum, based on literacy task analysis of college health occupations programs and textbooks, included reading, writing, and math directly related to health care job practices. Collaborative learning, videotaped biology and chemistry lectures for independent study, and college preparatory educational counseling were also featured. A committee of student representatives provided ongoing feedback about participant concerns and reactions.

Highs and Lows

Of the 125 who began the program, 47 completed it and 52 others attended from 7 to 21 of the 28 weeks. Literacy skills were measured by simulated college placement tests and teacher ratings. Both showed significant writing gains, but mixed results for reading and math. The extent of literacy gains was clearly related to the amount of time spent in the project. Several months after completion, 65 percent of 96 participants surveyed had been accepted by a college.

The most often cited reasons for noncompletion were family or health problems,

followed by instruction that was too fast paced. However, some of the noncompleters were also among the college entrants and apparently left because they felt they had met their goals. Interestingly, 24 percent of the college entrants began programs in liberal arts rather than health care. The program thus served both to screen out individuals who were not interested in or appropriate for college-level study and to clarify the academic goals of others.

Recommendations

- Initial screening for reading and math as well as writing, then individualized instruction schedules to focus on an individual's weaker areas
- Pre- and postprogram assessment of career-related motivation and career knowledge
- A "tryout" orientation to college preparation to help people determine their motivation for a long-term program
- Accommodations for those who find instruction too fast paced (for example, peer tutoring)
- College placement tests taken immediately after program completion to maximize the effects of the program
- Ongoing support (such as tutoring and counseling) provided throughout college

• **Title:**	Literacy and the Trowel Trades Educational Assistance Program
• **Partners:**	International Union of Bricklayers and Allied Craftsmen International Masonry Institute
• **Special Features:**	videotapes for home study computer-assisted instruction tutoring National Workplace Literacy Program
• **Target Population:**	trowel trades workers who were members of one of the unions
• **Source:**	*Literacy and Trowel Trades Project. Evaluation Report.* Washington, DC: IMI and IUBAC, 1990. (ED 324 442)

Program Description

As many such programs recommend, this program was promoted as an "Educational Assistance Program" and the word "literacy" was avoided. Workers were recruited through BAC (bricklayers and allied craftsmen) to Learning workshops and solicitation by local union coordinators. The basic skills of 615 workers were assessed in reading, math, writing, presentation, listening, and problem solving at sites in Chicago, Los Angeles, and New York. Instruction was provided to 116 participants in one of three modes: videotape, individual tutoring, and computer-assisted instruction (CAI).

Highs and Lows

Word of mouth and local coordinator solicitation were successful recruitment methods. Participants liked the videotapes best because they could work at home at their own pace and schedule. However, the time needed to request tapes was too long and the content was not always appropriate. A plus for the tutoring method was customized materials, but participants felt that scheduling was inconvenient. CAI was the least liked format, due to fear of using computers and software that was inappropriate for adults.

Recommendations

- Programs should take a wellness perspective in which lack of literacy skills is not viewed as a defect or disease; instead, participants' coping skills and multiple intelligence should be recognized.
- Videotapes need to be specific, trade related, and better matched to individual skill levels. Scheduling should provide convenient access and participants should be able to use tapes in pairs.
- Group tutoring with customized materials might be more effective than individual tutoring.

- Computer software appropriate for adults and relevant to specific trades should be used. Attention should be paid to the issue of computer anxiety.

- **Title:** Competitive Skills Project
- **Partners:** El Camino College
BP Chemicals/HITCO Inc.
- **Special Features:** total quality management
language, numerical, and computer literacy
National Workplace Literacy Program
- **Target Population:** BP/HITCO employees with limited English proficiency
- **Source:** *Competitive Skills Project. Final Report.* Torrance, CA: El Camino College, 1992. (ED 348 489)

Program Description

Total quality management (TQM) is a concept being used in business and industry to ensure continuous attention to the quality of products and services by all members of an organization. Workers with limited written and verbal skills cannot participate fully in TQM. Thus, the goal of the Competitive Skills Project (CSP) was to improve workers' skills for implementing quality principles and technological innovation. (Similarly to other programs, CSP dropped "Basic" from its title due to its negative connotations.) BP/HITCO employees in two categories were targeted: (1) shop floor, maintenance, and technical service workers and (2) higher skill classifications. BP/HITCO's work force is composed of 75 percent minority groups, of whom three-fourths are nonnative English speakers.

Needs assessments, literacy audits, and task analyses were used to develop the context-based customized curricula. Three types of needs were identified:

1. Language-based literacy, such as understanding instructions; following directions; using such materials as flowcharts, graphs, specification tables; and understanding technical terms involved in TQM.
2. Numerical literacy--understanding specifications, using measurement tools, implementing statistical techniques.
3. Basic computer literacy

To address these needs, the following courses were developed:

- Communication/English Skills for Quality–basic reading, writing, grammar, and communication
- TQM for Limited English Proficient Persons–conversational English skills to enable participation in quality improvement activities
- English as a Second Language for TQM–building on the preceding course, focus on the skills needed for teamwork and report writing
- Math Skills for Quality–basic math skills using a calculator

Participation was voluntary and recruitment was done through bulletin board announcements, department meetings, and word of mouth. Individualized education plans were set up for each employee.

Highs and Lows

A total of 120 employees completed the courses and workshops on computer literacy and report writing. An onsite computer lab was established with vocabulary, reading, and grammar software. Coworkers who volunteered as tutors were trained in a 20-hour workshop.

Among the problems encountered were loss of the project director and coordinator, layoffs due to the recession, and a lack of cooperation on the part of some supervisors to release workers to attend classes. To combat the latter, a workshop was held to give supervisors an awareness of basic skill/literacy needs on the job and to provide them with skills and techniques to help employees with skill problems.

Recommendations

- Consistency of project staff and business partners is critical to effectiveness.
- Cooperation of line supervisors should be ensured in such areas as release time for class attendance and acceptance of TQM input from newly trained employees.
- Formulation of customized curricula is an ongoing process requiring continual modification.

• **Title:**	Colorado Workplace Learning Initiative
• **Partners:**	Colorado Community College and Occupational Education System (CCCOES) Community College of Denver/U.S. West Communications/ AT&T Pikes Peak Community College/Digital Equipment/Hewlett Packard Community College of Aurora/small businesses Pueblo Community College/CF&I/U.S. West/Latino Chamber of Commerce
• **Special Features:**	five demonstration sites process model for public/private partnerships variety of business partners National Workplace Literacy Program
• **Target Population:**	Over 1,000 workers from small businesses, manufacturing firms, high technology firms
• **Source:**	*Colorado Workplace Learning Initiative: Skills for Productivity and Career Enhancement. Final Performance Report.* and *Workplace Learning Curriculum Guides. Volumes I-VIII.* Denver: Colorado Community College and Occupational Education System, 1992. (ED 349 444-452)

Program Description

This ambitious project involved partnerships of five community colleges with a variety of businesses to meet a broad range of workplace learning needs ranging from basic to advanced, traditional to nontraditional skills. The five sites were as follows:

1. The Community College of Aurora provided customized, onsite training to six small businesses. The 125 participants took courses in wellness, word processing, Spanish, English as a second language (ESL), career development, and learning to learn.

2. The Community College of Denver provided training to 225 U.S. West telephone operators in word processing, stress management, communications, career development, and critical thinking. Although fees were charged for the onsite seminars and brown-bag sessions, those employed over 1 year had their fees paid by a fund.

3. The Community College of Denver's Technical Education Center worked in conjunction with the Enhanced Training Opportunities Program, a joint effort of AT&T and the International Brotherhood of Electrical Workers to offer independent study and structured courses for manufacturing workers at a union-sponsored onsite learning

center. The 177 participants received traditional basic skills training, including ESL, preparation for the General Educational Development (GED) Test, and self-esteem in the workplace.

4. Pikes Peak Community College instructed 375 employees of its two high-tech partners in team building, problem solving, communications, technical writing, math, and other skills for current and future job requirements.

5. Pueblo Community College conducted classes in a learning center provided by Colorado Fuel & Iron (CF&I) to 467 employees of CF&I, U.S. West, and small business members of the Latino Chamber of Commerce. Classes included basic and computer skills and enhanced skills (such as time, money, and stress management; decision making, goal setting, safety in the workplace).

Highs and Lows

Of the 1,696 participants, 43 percent were enrolled in basic skills courses (literacy, GED, ESL), 36 percent in enhanced/non-traditional skills training, and 21 percent in computer classes. In a follow-up survey, 64 percent of the 184 respondents said the program gave them a renewed interest in education; 42 percent took additional classes at work or a community college. Better skills, more confidence, and greater willingness to learn were common outcomes.

The project developed a process model for workplace literacy partnerships that is generalizable to a broad range of businesses. Advantages of centralized, statewide leadership through the CCCOES were a broader perspective, increased resource base, and backup structure. Considered a disadvantage was the additional layer of review, reporting, and bureaucratic structure. Catalysts for success were strong upper management commitment, creative programs and delivery systems, supportive worksite and college cultures, and a flexible, adaptable process. However, a number of obstacles were encountered: communication difficulties across numerous and geographically separated sites, adequate funding, appropriate technology, availability of adult-based workplace materials, some community college territoriality and politics, some businesses' proprietary mentality toward programs and materials, and incongruence of expectations.

Recommendations

- Project planning should anticipate the impact of economic instability on partnerships, training, and participants.

- Greater use of computer networks and telecommunications would improve communication among distant sites and partners.

- Evaluation methods should measure three distinct outcomes: skill gains, achievement of individual goals, and workplace effects.

- A database of cross-project information would assist program decision making.

- It should be recognized that the definition of "basic" skills varies by organization. The concept "workplace literacy" should be replaced by "workplace learning," a continual process.

- **Title:** Rural Workplace Literacy Project
- **Partners:** California Human Development Corporation
  California agribusinesses
- **Special Features:** English as a second language
  life/coping skills for immigrants
  National Workplace Literacy Program
- **Target Population:** migrant/seasonal farmworkers
- **Source:** *Rural Workplace Literacy Project: Northern California. Final Report.* California Human Development Corporation, 1991. (ED 340 891)

Program Description

California agribusinesses, such as vineyards and vegetable, fruit, and nut growers, deal with increasingly complex agricultural technology and an emphasis on quality control in production. However, many of their workers are temporary, nonnative English speakers. The Rural Workplace Literacy Project provided literacy classes at 15 worksites to 264 migrant and seasonal farmworkers. The majority had limited English proficiency and had completed sixth grade or less, but they had mixed abilities because some had been in the United States for a long time and others were new arrivals. Employers provided classroom space, administrative services, and access to equipment; some gave paid release time and attendance bonuses. A core curriculum for agriculture was tailored to each site and included whole language, cooperative learning, and problem-posing approaches. The curriculum emphasized communications in the workplace and life skills for entering mainstream U.S. society. Bilingual teachers used the Comprehensive Adult Student Assessment System (CASAS) adult life skills and employability skills assessments for pre- and posttesting. Individualized education plans were prepared for each student.

Highs and Lows

All participating workers were very positive about the program. They felt that their self-confidence had increased, they used English more on the job and in the community, and they were interested in further education. However, there were problems in assessing actual skill gains. Posttesting was complicated by seasonal layoffs and poor weather conditions affecting work (drought). Although the CASAS was work based, it was not specifically agriculture related. Employers and employees had different objectives for the program. Most employers did not understand how the program would benefit them. They expected such a program to develop work procedure skills rather than academic skills. They also expressed concern that workers with improved literacy skills would quickly leave for other jobs.

Recommendations

- The core curriculum should emphasize math and a broader matrix of communication skills.
- Teachers would benefit from a resource library of materials with work-related content, as well as magazines, novels, poetry, newspaper articles, videos, and films.
- Employers need to be informed about the benefits and implications of workplace literacy, particularly the connection to productivity.
- The diversity of levels and objectives among students could be addressed with a variety of peer support techniques (tutoring, small practice groups, discussion circles, homework groups), giving workers an opportunity to practice teamwork skills.
- Individualized education plans should be practical instruments expressing reasonable learning expectations.

RESOURCE ORGANIZATIONS

The organizations listed here are representative of those that are national in scope. Many other local, regional, and state organizations and consortia are also involved in workplace literacy.

ABC Canada
1450 Don Mills Road
Don Mills, Ontario M3B 2X7
(416) 442-2292

A private sector foundation promoting literacy. Publishes the quarterly newsletter, *Literacy and Work.*

AFL-CIO Human Resources Development Institute
815 16th Street, NW
Washington, DC 20006
(202) 638-3912

Provides materials, training, and technical assistance for labor education programs.

American Society for Training and Development
Institute for Workplace Literacy
1640 King Street, Box 1443
Alexandria, VA 22313-2043
(703) 683-8158

Conducts research on workplace literacy.

Business Council for Effective Literacy
1221 Avenue of the Americas, 35th Floor
New York, NY 10020
(212) 512-2415; (212) 512-2412

Among BCEL's numerous publications is the quarterly newsletter, *BCEL Newsletter for the Business and Literacy Communities.*

ERIC Clearinghouse on Adult, Career, and Vocational Education
Center on Education and Training for Employment
Ohio State University
1900 Kenny Road
Columbus, OH 43210-1090
(614) 292-4353; (800) 848-4815

Publications on the topic of workplace literacy include *Digests* and *Trends and Issues Alerts.* Semiannual news bulletin, *ERICFile.* Provides information services including searches of the ERIC database.

Institute for the Study of Adult Literacy
Pennsylvania State University
204 Calder Way, Suite 209
University Park, PA 16801-4756
(814) 863-3777

Conducts research and develops print materials and software on adult literacy. Publishes a newsletter, *MOSAIC: Research Notes on Literacy.*

National Center on Adult Literacy
University of Pennsylvania
3700 Walnut Street
Philadelphia, PA 19104
(215) 898-2100

Adult literacy research center funded by the U.S. Department of Education. Publishes a newsletter, ***NCAL Connections.***

National Clearinghouse on Literacy Education for Limited English Proficient Adults and Out-of-School Youth
(Adjunct ERIC Clearinghouse on Literacy Education)
Center for Applied Linguistics
1118 22nd Street, NW
Washington, DC 20037-0037
(202) 429-9292

Semiannual news bulletin, ***NCLE Notes.***

National Institute for Literacy
800 Connecticut Avenue, NW, Suite 200
Washington, DC 20006
(202) 632-1500

Established by the National Literacy Act of 1991 and administered by interagency group agreement of the U.S. Departments of Education, Labor, and Health and Human Services to support National Education Goal 5: Adult Literacy and Lifelong Learning.

U.S. Department of Education
National Workplace Literacy Program
Office of Vocational and Adult Education
Division of National Programs
400 Maryland Avenue, SW
Washington, DC 20202-7240
(202) 205-9872

Begun in 1988 and modified by the National Literacy Act of 1991, the program provides grants for projects to improve the productivity of the work force through improvement of literacy skills needed in the workplace. A required element is partnerships between businesses, industries, labor unions or private industry councils, and educational organizations.

Union-Sponsored and Joint Programs

Service Employees International Union
Education Division
1313 L Street, NW
Washington, DC 20005
(202) 898-3200

Director of Education Programs
United Auto Workers
8000 East Jefferson Avenue
Detroit, MI 48214
(313) 926-5474

UAW/Ford National Education Development and Training Center
5109 Evergreen Road
Dearborn, MI 48128
(313) 337-3464

UAW/General Motors Retraining and Employment Program
53 1/2 West Huron Street
Pontiac, MI 48058
(313) 456-6205

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APPENDIX A
NATIONAL WORKPLACE LITERACY PROGRAM
FUNDED PROJECTS IN ERIC

The National Workplace Literacy Program is currently on the fourth cycle of funding programs. This appendix lists information available in ERIC on programs funded during the first three cycles. Items with ED numbers are available from the ERIC Document Reproduction Service (see page 9 for more information). Items with CE numbers will be available from EDRS in the near future. The issue of *Resources in Education* in which they are scheduled to appear is indicated.

First Cycle	Second Cycle	Third Cycle
ALABAMA		
	ED 341 829 *Project L.E.A.R.N. (Literacy, Employment, Advancement, Readiness Network). Final Evaluation Report.* Hanceville, AL: Wallace State College, 1992.	ED 348 550 *Project SIDE. Workplace Literacy Procedural Report.* Monroeville: Alabama Southern Community College, 1992.
ARIZONA		
ED 321 609 *Pima County Adult Education Workplace Literacy Project Materials Developed January 1989-March 1990.* Tucson, AZ: Pima County Adult Education, 1990. ED 322 293 *Pima County Workplace Literacy Partnership Grant. Final Report.* Tucson, AZ: Pima County Schools, 1990.		

First Cycle	Second Cycle	Third Cycle

CALIFORNIA

ED 322 341
Working Smart: The Los Angeles Workplace Literacy Project. Final Report.

ED 322 342
Working Smart Performance Modules, Communication Modules, Computational Modules.

ED 322 343
Working Smart Workbook. An Interactive Learning Experience. Los Angeles: Los Angeles Unified School District, 1990.

ED 340 891
Rural Workplace Literacy Project: Northern California. Final Report. Santa Rosa: California Human Development Corp., 1991.

ED 343 734
Evaluation of California Human Development Corporation Workplace Literacy Program. Sebastopol, CA: Kissam and Associates, 1991.

ED 336 612
Career Skills Enhancement Program. Final Report. San Jose: Santa Clara County Office of Education, 1991.

ED 337 668
Career Skills Enhancement Program. Project Evaluation Report for 1990-1991. San Jose: Santa Clara County Office of Education, 1991.

ED 348 489
Competitive Skills Project Final Report. Torrance, CA: El Camino College, 1992.

First Cycle	Second Cycle	Third Cycle
COLORADO		
	ED 349 468 *Workplace Applications of Basic Skills.* Ft. Collins: Hewlett-Packard; Lutheran Family Services of Colorado, 1991.	ED 349 444-452 *Colorado Workplace Learning Initiative: Skills for Productivity and Career Enhancement. Final Performance Report and Curriculum Guides.* Denver: Colorado Community College and Occupational Education System, 1992.
CONNECTICUT		
	ED 344 993 *Greater Hartford Alliance for Literacy Performance Report.* Hartford: Greater Hartford Community College, 1991.	
DISTRICT OF COLUMBIA		
ED 324 442 *Literacy and Trowel Trades Project. Evaluation Report.* Washington, DC: International Masonry Institute; International Union of Bricklayers and Allied Craftsmen, 1990.	ED 343 998 *Skills Enhancement Training Program. Performance Report.* Washington, DC: Employers Benefits Fund; Food and Beverage Workers Union Local 32, 1992.	

First Cycle	Second Cycle	Third Cycle

FLORIDA

ED 335 970
Project Learning T.I.P. (To Improve Productivity) Workplace Literacy Program at Lindsey Hopkins Technical Education Center, 1989-1990. Final Evaluation. Miami: Dade County Public Schools, 1990.

ED 329 133
A Handbook of the Workplace Literacy Project, 1988-90. Orlando: Orange County Public Schools, 1990.

GEORGIA

ED 322 295
Public/Private Sector Partnership for Adult Literacy Education in a Rural Environment. Final Performance Report. Statesboro: Georgia Southern College, 1990.

ED 328 665
Hospital Job Skills Enhancement Program: A Workplace Literacy Project. Final Evaluation Report.

ED 328 666
Hospital Job Skills Enhancement Program Curriculum Manual. Atlanta: Center for the Study of Adult Literacy, Georgia State University; Grady Memorial Hospital, 1990.

First Cycle	Second Cycle	Third Cycle

HAWAII

ED 333 237
Story of S.U.C.C.E.S.S. A Model Workplace Literacy Program. Manoa: University of Hawaii, 1990.

ED 343 736
Lanai Visitor Serving Workplace Literacy Project: Final Performance Report. Honolulu: Hawaii Human Development, 1991.

ED 324 449
Skills Enhancement Literacy Project of Hawaii. Final Program Model, Final Performance Report, Final Evaluation Report. Manoa: University of Hawaii, 1990.

ED 345 086
Skills Enhancement Literacy Project of Hawaii (II). Final Project Performance Report. Manoa: University of Hawaii, 1992.

IDAHO

ED 340 984
Idaho Partnership for Workplace Literacy. Final Report. Boise: Idaho Department of Employment; Idaho Association of Private Industry Councils, 1990.

ILLINOIS

ED 322 296
Project Workplace Literacy Partners in Chicago. Final Report. Des Plaines: Northwest Educational Cooperative; Chicago: Travelers Aid/Immigrant Service of Metropolitan Chicago, 1990.

ED 339-871
Workplace Literacy Partners for the Manufacturing Industry in Chicago and Cook County. Final Performance Report; Des Plaines: Adult Learning Resource Center, 1991.

First Cycle	Second Cycle	Third Cycle
ED 324 458 *POWER for Progress: A Model for Partnerships in Workplace Literacy.* River Grove: Triton College, 1990.	ED 339 872 *A Basic Skills Core Curriculum for the Manufacturing Industry.* Des Plaines: Adult Learning Resource Center, Community Consolidated School District 54, 1991.	
ED 327 645 *Review of Evaluation Procedures Used in Project POWER.* Columbus: Center on Education and Training for Employment, Ohio State University, 1990.		
ED 326 080 *Workplace Literacy Core Curriculum for Beginning ESL. Project Workplace Literacy Partners in Chicago.* Des Plaines: Northwest Educational Cooperative, 1990.		

INDIANA

ED 341 777
Lafayette Adult Reading Academy and St. Elizabeth Hospital Employee Literacy Program. Final Performance Report. Lafayette: Lafayette School Corp.; St. Elizabeth Hospital, 1991.

ED 342 994
Project Winamac. Final Performance Report. Logansport: El-Tip-Wa Adult Learning Center, 1992.

First Cycle	Second Cycle	Third Cycle
	ED 349 426 *Workplace Literacy Skills Improvement Project.* Indianapolis: Indiana Voc Tech College, 1992.	

MARYLAND

ED 315 563
Basic Skills, Preparation for the GED, and English as a Second Language. Workplace Literacy Quarterly Report. Upper Marlboro, MD: Prince George's County Board of Education, 1989.

MASSACHUSETTS

ED 329 132
Workplace Literacy: A Curriculum Development Guide. Wilmington, MA: Altron, Inc.; Lowell, MA: Cambodian Mutual Assistance Association, 1989.

ED 322 796
Lower Merrimack Valley Workplace Education Project. Final Report. Woburn, MA: Alpha Industries; Haverhill, MA: Community Action, Inc., 1990.

ED 324 497
Workplace Literacy Partnership for Nursing Home Employees. Final Report. Needham, MA: Continuing Education Institute, 1990.

ED 344 503
Participatory Approaches to Evaluating Outcomes and Designing Curriculum in Workplace Education Programs. The Report of the 1991 Evaluation of the Massachusetts Workplace Education Initiative. Newton Highlands, MA: Evaluation Research, 1991.

First Cycle	Second Cycle	Third Cycle

ED 322 393
Boston Workplace Education Collaborative. Final External Evaluation. Boston: Roxbury Community College, 1990.

MICHIGAN

ED 329 746
Project T.A.C.K.L.E. (Together Addressing the Challenges of Knowledge and Literacy for Employees). Evaluation Report. Flint: Carman-Ainsworth Community Schools; Detroit: General Motors, 1990.

ED 341 833
Skills Enhancement Program. Performance Report, Evaluation Report, and Administration Manual.

ED 341 834
Math for Success in Electronics. Instructor's Guide and Reference Manual. Ecorse, MI: Great Lakes Steel; Ann Arbor: Industrial Technology Institute; Detroit: Wayne County Community College, 1991.

NEW JERSEY

ED 327 634
Workplace Literacy Partnerships Program. Final Performance Report. Trenton: New Jersey Department of Education, 1990.

NEW MEXICO

ED 343 022
Step Ahead: A Partnership for Improved Health Care Communication.

ED 343 023.
Effective Presentations.

First Cycle	Second Cycle	Third Cycle
	ED 343 024. *Communication for Supervisors.*	
	ED 343 025. *Straight Talk.*	
	ED 343 026. *The Write Stuff: Memos and Short Reports.* Las Cruces: New Mexico State University, 1991.	
NEW YORK		
	ED 346 264 *Workplace Literacy Instruction for College Preparation of Health Care Workers.*	
	ED 346 237 *Retention Patterns in an Adult Basic Education Program for Health Care Workers.* New York: Institute for Research and Development in Occupational Education, CUNY, 1992.	
NORTH CAROLINA		
	ED 345 028 *Lifelong Learning for Jobs 1990-1991.* Roxboro: Piedmont Community College, 1992.	

First Cycle	Second Cycle	Third Cycle

OHIO

ED 347 302
Workplace Literacy for World Class Manufacturing. Final Report. Columbus: College of Education, Ohio State University, 1992.

OREGON

ED 346 254
Columbia-Willamette Skill Builders Consortium. Final Performance Report. Portland: Portland Community College, 1992.

ED 346 255
Columbia/Willamette Skillbuilders Grant Report. Oregon City: Clackamas Community College, 1992.

ED 346 256
Skill Builders. Anodizing, Inc. Aluminum Extrusion Manufacturing. Initial Final Report. Gresham: Mount Hood Community College, 1991.

ED 346 257
Skill Builders. Carpenter Apprentice Program. Initial Final Report. Gresham: Mount Hood Community College, 1991.

ED 346 258
Skill Builders. Commercial Drivers License Program. Gresham: Mount Hood Community College, 1991.

First Cycle	Second Cycle	Third Cycle
	ED 346 259 *English in the Workplace at Leupold & Stevens.* Portland: Portland Community College, 1991.	
	ED 346 260 *Blueprint Math Applications. A Basic Math Skills Program for Leupold & Stevens.* Portland: Portland Community College, 1991.	
	ED 346 261 *Workplace Literacy at LWO Corporation 1990-1991.* Portland: Portland Community College, 1991.	
	ED 346 262 *Skill Builders. Nabisco, Inc. Final Report.* Portland: Portland Community College, 1991.	

PENNSYLVANIA

ED 329 761
Workplace Literacy Instruction and Evaluation: R.O.A.D. to Success. University Park: Institute for the Study of Adult Literacy, Penn State University, 1990.

TENNESSEE

ED 324 427
The BEST Blueprint. Quality ABE in the Workplace. Columbia, TN: Maury County Board of Education, 1990.

First Cycle	Second Cycle	Third Cycle

TEXAS

ED 341 835
Evaluation of a Workplace Literacy Program: A Cooperative Effort between Houston Lighting and Power Company and North Harris County College. College Station: Texas Center for Adult Literacy and Learning, Texas A&M University, 1991.

UTAH

Rural Adventures in Workplace Literacy. Final Report. San Juan: College of Eastern Utah, 1992.

VIRGINIA

ED 321 074
Career Enhancement Program for the Poultry Processing Industry of the Shenandoah Valley of Virginia. Final Report. Harrisonburg: James Madison University, 1990.

ED 313 927
Perspectives on Organizing a Workplace Literacy Program. Arlington: Arlington Co. Public Schools, 1989.

ED 347 860
REEP Hotels/Chambers Federal Workplace Literacy Project. Arlington: Arlington Education & Employment Program, 1991.

ED 347 861
Arlington/Alexandria 1990-1991 REEP Workplace Literacy Training Project. Final Evaluation Report. Arlington: Arlington Education & Employment Program, 1992.

First Cycle	Second Cycle	Third Cycle

ED 322 290-291
REEP/Hotel Workplace Literacy Project. Final Performance Report. Evaluation Report. Arlington: Arlington County Public Schools, 1990.

ED 321 613
Housekeeping ESL. Workplace Literacy Curriculum for Hotels. Arlington: Arlington County Public Schools, 1990.

WASHINGTON

ED 322 298
Workplace Skills Enhancement Project. Final Report. Seattle: Seattle-King County Private Industry Council, 1990.

WEST VIRGINIA

ED 323 324
Workplace 2000 Project. Final Performance Report. Wheeling: West Virginia Northern Community College, 1990.

WISCONSIN

ED 334 442
Workplace Educational Skills Analysis Training Guide. Madison: Wisconsin Board of Vocational, Technical, and Adult Education, 1991.

First Cycle	Second Cycle	Third Cycle
	ED 334 443 *Wisconsin Workplace Partnership Literacy Program. Evaluation. 2nd Edition.* Madison: Wisconsin Board of Vocational, Technical, and Adult Education, 1990.	

GUAM

		Starlite Workplace Literacy Program. Final Closeout Performance Report. Guam: Guam Community College, 1992.

APPENDIX B

ERIC DIGEST No. 102

EDO-CE-90-102

Clearinghouse on Adult, Career, and Vocational Education

LOCATING AND SELECTING INFORMATION: A GUIDE FOR ADULT EDUCATORS

The term **information society** has become a cliche but the fact of the matter is we are living in an age in which we are bombarded with information. In his book **Information Anxiety**, Richard Wurman (1989) accurately describes how many of us feel when surrounded with vast amounts of data that do not provide the required knowledge. According to Wurman, the following situations are likely to produce information anxiety: not understanding information, feeling overwhelmed by the amount of information to be understood, not knowing if certain information exists, not knowing where to find information, and knowing exactly where to find information but not having the key to access it (ibid., p. 44).

No matter what their role, knowing how to identify, select, and evaluate information resources are important processes for adult educators. They need to be aware of a wide range of possible resources. In addition, they must be able to sift through and evaluate their relevance. This **ERIC Digest** describes where adult educators can find information resources and suggests strategies for accessing information. It ends with some guidelines for selecting the most appropriate information.

Information Sources for Adult Educators

Two of the main sources of information related to adult education are information databases and clearinghouses or resource centers. Libraries--particularly college and university libraries located at institutions with graduate programs in adult and continuing education--are also sources of adult education information, but they will not be discussed here. Individuals can inquire at their local libraries about the availability of specific resources, for example, online databases or books.

Information Databases

Information databases store collections of related information that can be retrieved via computer using information retrieval software. When stored, the materials have usually been indexed or classified using a vocabulary control device, i.e., a thesaurus, a list of subject headings, or a specialized classification scheme, to facilitate their retrieval. This controlled vocabulary is used to retrieve information from a database (Niemi and Imel 1987).

A large number of existing databases contain information useful to adult educators. Two comprehensive references that can be used in selecting the most appropriate database are the *Encyclopedia of Information Systems and Services, 10th Edition* (1990) and *Datapro Directory of On-Line Services* (1990). Both provide information about a variety of online databases and are available at many libraries.

The Educational Resources Information Center (ERIC) database is considered to be the primary source for adult education due both to its purpose and its history of service to the field. ERIC has been collecting and classifying all types of educational materials since 1966. Its focus is on fugitive materials (those that are not otherwise readily available) such as pamphlets, conference proceedings and papers, curriculum materials, research studies, and reports of government-funded projects. More than 700 education-related journals, including all major adult education journals published both in the United States and abroad, are scanned regularly to select articles for inclusion in the database (Imel 1989; Niemi and Imel 1987). Over 14,000 items indexed with the term **adult education** have been included in the ERIC database since 1966.

The availability of microcomputers and the packaging of the ERIC database in CD-ROM (compact disk-read only memory) format make ERIC more accessible to the general public. Many individuals are choosing to search ERIC without the assistance of a professional searcher using microcomputers or CD-ROM equipment. A subject search of ERIC results in bibliographic information plus an abstract of all information in the ERIC database on the topic (Imel 1989).

Clearinghouses and Resource Centers

Several clearinghouses and resource centers disseminate information about adult education to a variety of audiences including administrators, teachers, researchers, students, and the general public. Some of these organizations, such as the ERIC Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) are national in scope. Others, such as AdvancE (Pennsylvania's adult education resource center and clearinghouse), are state-level organizations. Some of the functions provided by clearinghouses and resource centers include searches of information databases, information about resources, collections of materials, and referral to other agencies and organizations serving adult learners. Many also develop and make available newsletters and free and inexpensive materials related to adult education resources. *The Directory of National Clearinghouses: Resource Centers and Clearinghouses Serving Adult Educators and Learners* (1990) provides information about national clearinghouses and resource centers.

Strategies for Accessing Resources

Knowing where resources are located is one piece of the information puzzle, but this knowledge is best used in combination with some strategies to begin helping you access the most appropriate resources. Such questions as How much information do you need?, How much do you already know about the topic?, How much time and money do you have to devote to this task?, and How do you plan to use the information? can assist in selecting the best strategy to begin your information search.

Two common strategies used to identify information resources include asking other people and searching information databases. Sometimes the best place to begin a search is by getting

in touch with someone who is familiar with the area. This strategy may be particularly useful if you know little or nothing about the topic. Most adult educators are more than happy to share information about their work, including key information sources. Adult education resource center and clearinghouse personnel are frequently able to help you identify information sources. These individuals work with adult education information resources on a daily basis and are knowledgeable about new materials. They may be able to refer you to other sources of information as well.

A second strategy for locating information is by searching information databases. Most information databases can be accessed both manually and by computer, and many are available in CD-ROM format.

Manual searching. Manual searching refers to the process of using print indexes or catalogs to identify resources. Although not as efficient as computer searching, it may be more effective, especially if you only need a small amount of material or if you are unfamiliar with the topic. A manual search permits the luxury of browsing that the cost of computer searching prohibits. The tradeoff, however, is the cost of the time devoted to the task. Another drawback to manual searching is the fact that you can only search under one subject heading at a time.

Computer searching. Computer searching can be both efficient and effective, provided you know what you are looking for. Computer searching is the most efficient means of retrieving a large amount of information on a topic because it allows you to combine two or more subjects. It can also permit you to limit your search to certain types of material such as research, project descriptions, and curricula. If you have not sufficiently focused your topic, however, it can result in irrelevant material. If you are unfamiliar with the database you wish to search, it is best to consult a professional searcher before attempting a search.

CD-ROM searching. Searching using CD-ROM combines many of the best features of both manual and computer searching. Because there are no online charges being incurred, it can provide the luxury of browsing at the same time it provides the efficiency of computer searching. Because of the time needed to print out citations, CD-ROM is not the best medium for large searches. Also, the demands placed on many CD-ROM stations available to the public may mean limited access.

Selecting Information Sources

Selecting potential sources of information once they have been identified is another step in process. How selective you wish to be may depend on a number of factors such as the amount of material uncovered in your search, the use to which you intend to put the information, and the availability of the sources.

Barrows (1987) suggests weighing the advantages and disadvantages of each source in terms of the following:

- **Availability**. Is the source obtainable?
- **Accessibility**. How easy is it to acquire the source?
- **Time**. How long will it take to get it?
- **Effort**. How much trouble will it be to get it?
- **Cost**. How much will it cost?

Although important in terms of the feasibility of acquiring resources, these criteria have nothing to do with evaluating the substantive nature of the resource. The following guidelines can be used to evaluate and select resources based on their content:

- **Authority of source**. Is the author an established leader in the field? Is it published by an organization that is known for contributing to the field?
- **Timeliness**. Is the information current and up to date? Is it based on current references?
- **Relevance**. Does the source deal with the topic in a contemporary manner? Does the source contain the type of information you need?
- **Depth**. Is the topic treated in sufficient detail to be of use?
- **Accuracy**. Based on what you already know about the topic, is the information correct and reliable?
- **Replicability**. If you are planning to use the material for the purpose of replication, does the source contain information that can be used in other settings?

These criteria should be considered guidelines, not hard and fast rules, when selecting sources. Depending on how you will be using the information, some may be more important than others. For example, if a source meets all the other criteria, the fact that you are unfamiliar with the author or the producer may be irrelevant.

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Workplace Literacy: A Guide to the Literature and Resources, by Susan Imel and Sandra Kerka.

This guide to the burgeoning literature on workplace literacy begins with an overview of trends and issues, followed by tips on locating and selecting resources. An annotated bibliography of recent resources is organized by a framework for classifying the literature. Descriptions of selected workplace literacy programs illustrate various aspects of program development. Other contents are a list of resource organizations and a state-by-state guide to National Workplace Literacy Program documents in the ERIC database.

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